REMARKS

Reconsideration of this application, as amended, is respectfully requested.

THE CLAIMS

Claim 8 has been amended only to correct a minor grammatical error.

Clearly, no new matter has been added, and no new issues have been raised which require further consideration on the merits and/or a new search.

Accordingly, it is respectfully requested that the amendment to claim 8 be approved and entered under 37 CFR 1.116.

THE PRIOR ART REJECTION

Claims 2-5 and 8 were rejected under 35 USC 102 as being anticipated by USP 6,194,869 (previously cited "Peterzell"); and claims 6 and 7 were rejected under 35 USC 103 as being obvious in view of the combination of Peterzell and USP 5,592,070 (previously cited "Mino"). These rejections, however, are respectfully traversed.

According to the present invention as recited in independent claim 8, a battery pack with a charge control function is provided which comprises an overdischarge control circuit, an overcharge control circuit, and a charge control circuit. As

recited in independent claim 8, the overdischarge control circuit detects an overdischarge mode of a secondary battery and supplies an overdischarge detection signal to a discharge control switch when the overdischarge mode is detected. In addition, as recited in independent claim 8, the overcharge control circuit detects an overcharge mode of the secondary battery and supplies an overcharge detection signal to a charge control switch when the overcharge mode is detected, and the charge control circuit performs charge control of the secondary battery by controlling the (same) charge control switch.

Thus, according to the structure of the present invention as recited in independent claim 8, the overcharge control circuit and the charge control circuit perform their respective functions by controlling the (same) charge control switch. And with the structure of the claimed present invention, the overcharge control circuit responds to overcharging, and the charge control circuit can ensure proper charging during charging, both by controlling the (same) charge control switch.

More specifically, with the structure of claim 8, as shown in Fig. 4, the charge control circuit 600 controls the charge control switch 30 so as to control the charging of the secondary battery 70. As explained in the specification at page 11, line 11 to page 12, line 12, the charge control performed by the

charge control circuit includes controlling the charge control switch (FET) 30 so as to keep the potential different across the current-detecting resistor at a predetermined level, and controlling the charge control switch (FET) 30 so that the battery voltage Vcc(ba) does not exceed a predetermined value. Conventionally, as shown in Figs. 2 and 3, this charge control function was performed in the adapter.

According to the structure of the present invention as recited in independent claim 8, moreover, the charge control switch (FET) 30 is also controlled by the overcharge control circuit 220 to respond to overcharging.

That is, according to the structure of the present invention as recited in independent claim 8, both overcharge control and charge control (i.e. controlling charging as it is occurring) are performed by controlling the (same) charge control switch.

It is again respectfully submitted that Peterzell does not disclose, teach or suggest this feature of the present invention.

By contrast, Peterzell discloses a self protection IC 28, and switches 30 and 32 that are controlled by the IC 28 to protect from overcharging and overdischarging. According to Peterzell, overcharge output 36 is connected to switch 30 to open the switch and prevent charging, and overdischarge output 38 is connected to switch 32 to open the switch and prevent discharging. As explained by Peterzell at column 3, lines 38-40

(cited by the Examiner), therefore, the FETs 30 and 32 are controlled "to enable charge and discharge of the battery pack when the current and voltage of the battery are within safe limits" (emphasis added).

It is respectfully submitted, however, that Peterzell does not at all disclose, teach or suggest the simplified structure of the claimed present invention whereby a charge control switch is controlled by both an overcharge control circuit and a charge control circuit to perform both overcharge control and charge control.

Mino, moreover, has merely been cited for the disclosure of heat detection elements.

Accordingly, it is again respectfully submitted that the present invention as recited in independent claim 8, and claims 2 and 4-7 depending therefrom, clearly patentably distinguishes over Peterzell and Mino, taken singly or in combination, under 35 USC 102 as well as under 35 USC 103.

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In view of the foregoing, entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned for prompt action.

Respectfully submitted,

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